Dangerous

- Before unpacking, installing, wiring, and operating the product, please check if the ARD is damaged.
- Please read this manual carefully and strictly follow the content of the manual for installation. Otherwise, it may damage this product and the original elevator system, even lead to personal injury accidents.
- Do not touch the input and output terminals or the components on the control board directly, as there is a risk of electric shock and damage to the board, which could result in personal injury.
- Please confirm that the input power is off before wiring. Live operation can cause electric shock and fire hazards.

Warning

- Do not install or use products that are damaged or missing accessories.
- The product shall not be installed in locations that are damp, corrosive, or flammable. Do not connect the three-phase power input wires to output terminals T1/T2/T3, as this will cause internal damage to the product.
- Please tighten the product wiring terminals regularly.
- The external schematic of this product is for reference only and may differ from the product you ordered. Due to product improvements or specification changes, the schematic this device may be changed without prior notice.

1. Product Introduction

In order to avoid the elevator trapping people due to power grid failure, causing physical and psychological harm to passengers, our company has developed the HHARD-3P series three-phase high-frequency sine wave elevator power failure emergency device. In the event of a power grid failure, it can automatically start after a delay time to provide emergency power to the elevator control system, allowing the elevator car to slowly run to the level position and open the door to release passengers. The features simple installation and wiring, convenient debugging, and high cost performance.

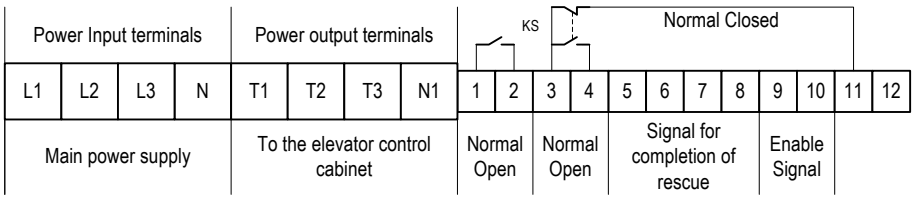
2. Product model naming convention

HH	-	ARD	-	3P	110	-	4	1	4	S3	R
HaoHome		Automatic Rescue Device		Three phase output	Elevator inverter Power 075:≤7.5KW 110:≤11KW 150:≤15KW 180:≤18.5KW 220:≤22KW 300:≤30KW 370:≤37KW		Input Voltage 1:AC200V 2:AC220V 4:AC380V 5:AC415V 6:AC440V 7:AC460V	Mode 0: 3 In 1 Out 1: 3 In 3 Out 2: 1 In 1 Out	Output Voltage 1:AC200V 2:AC220V 4:AC380V 5:AC415V 6:AC440V 7:AC460V	Series	Power Switch R: Power relay C: AC contactor

3. Dimensions

3P075-3P220: Height 550mm, Width 400mm, Thickness 10mm, wall-mounted or fixed with floor screws.
3P300-3P370: Height 920mm, Width 540mm, Thickness 170mm, wall-mounted or fixed with floor screws.

4. Definition of wiring terminals



Since the neutral line N of the power input is separated from the neutral line N1 of the power output, the neutral line of the lighting circuit be connected to the N terminal.

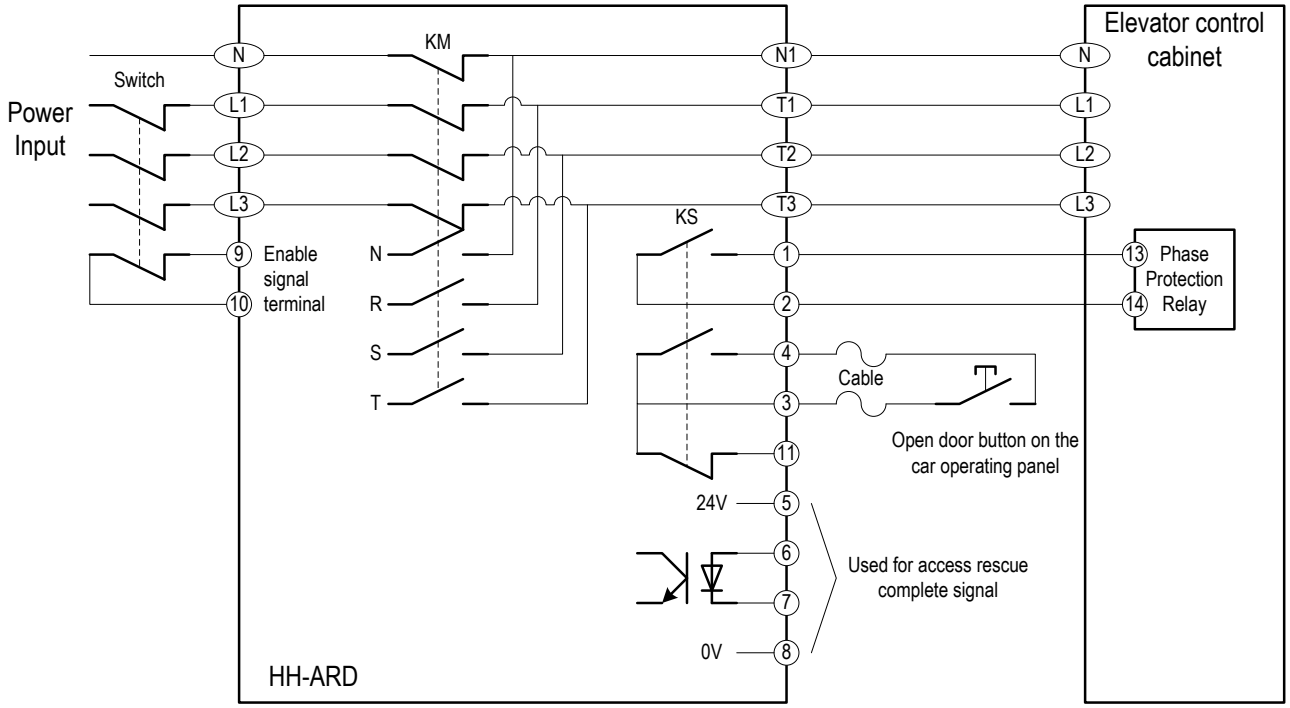
Passive outputs 1/2 and 3/4 are energized during rescue operation, while passive outputs 3/11 are de-energized during rescue operation.

Terminals 5/6/7/8 are used for connecting the rescue completion signal, allowing various connection methods. (See system connection for details.)

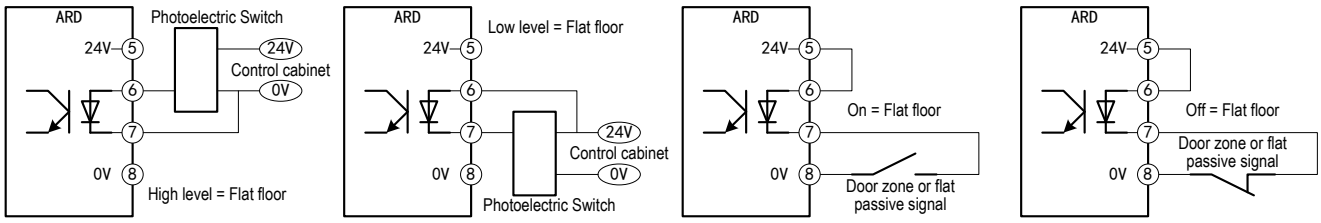
The enable signal 9/10 must a passive signal, typically used for switch detection. It needs to be shorted when not in use.

5. System Connection

The figure below shows a typical wiring schematic. The specific application method may vary depending on the user's system design, and users should determine the best plan based on the accurate information of the elevator control system.



The rescue completion signal can be connected through devices such as leveling or door area photoelectric switches, and spare contacts of door lock relays. It supports passive signals, active high-level signals, and active low-level signals.



6. Installation and Debugging

1) Before installing, debugging, and using this product, please makes sure to carefully read this manual.

2) Installation, wiring, commissioning, and other tasks must be carried out by qualified elevator professionals.

3) This device must be installed after the elevator has been fully debugged and is able to operate normally.

4) Makes sure to turn off the rocker switch on the side of the ARD and the internal single-pole circuit breaker before installation, and disconnect the power supply of the elevator.

5) Correctly connect the power and signal lines between the ARD and the elevator system. Carefully check to ensure that the city power is connected to L1, L2, and L3 terminals of the ARD, and the T1, T2, and T3 terminals of the ARD are to the power input terminals of the elevator control cabinet. Incorrect connections may cause damage to the device and other accidents.

6) Makes sure that all parts of the elevator are well grounded.

7) Restore the mains power supply, set the toggle switch on the side of the ARD to 1, the LED on the circuit board displays, the battery is charging, and the ARD is in standby mode.

8) The ARD parameters are set before leaving the factory. If necessary, you can hold down the SET button on the circuit board to modify the relevant. Please refer to the parameter description for details.

9) Cut off the city power, the LED on the ARD circuit board displays 1\2\3\4 in sequence, measure whether the output voltage is normal and whether the elevator can complete the rescue.

10) After the rescue is completed, if the city power is not restored, the AR will automatically shut down.

11) If an exception occurs during debugging, you can find the cause and analyze the solution based on the status and error code.

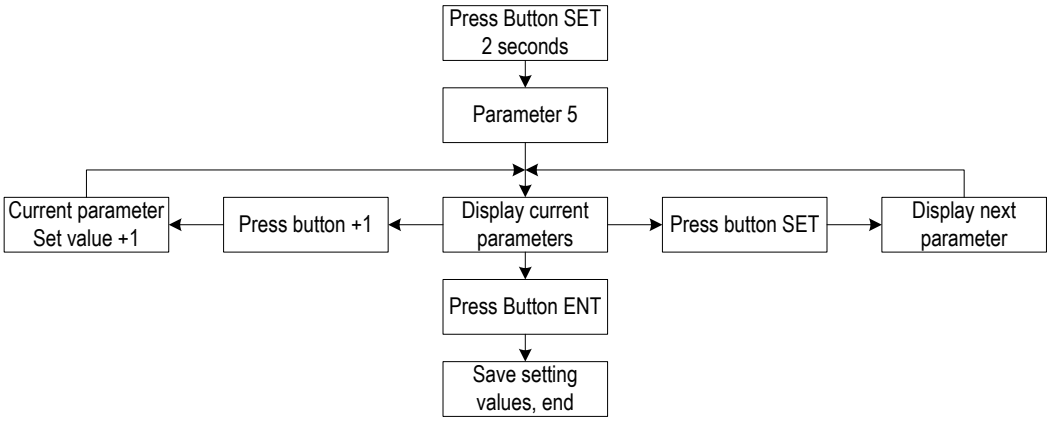
6. Status and Fault Codes

Code	Instruction	Code	Instruction
0	Power supply normal, charging on standby.	A	No enable signal during standby
1	Power supply Abnormal.	b	Battery under voltage during standby
2	Confirm power outage, delay to start.	c	The contactor KM1 is abnormal.
3	Emergency rescue preparation.	d	The contactor KM2 is abnormal.
4	In emergency rescue operations.	U	Battery short circuit protection (voltage)
5	Power supply restore, stop.	P	Battery short circuit protection (current)
6	ARD failure, stop.	J	Battery over current protection
7	Rescue time is up, stop.	H	Battery under voltage protection
8	Rescue completion, stop.	L	Output over voltage protection
9	Enable signal is lost, stop.	u	Output under voltage protection
F	Power In normal, but no charging voltage.		

7. Parameter Description

Code	Define	Range	Default value
5	Rescue completion signal filtering time	1-F = 1-15 seconds	5 (5s)
6	PID proportional gain coefficient	1-4 = 0.1-0.4	2 (0.2)
7	Unused	/	7
8	Output under-voltage protection	0 = Effective, else= Invalid	0 (Effective)
9	Output voltage adjustment value	1-F = -7 - +8	7 (No adj.)
A	Delayed start time after power outage	1-F = 5-75s, 5s/1	3 (15s)
b	Number of batteries in series	1-F = 1-15pcs	7 (7pcs)
C	Duration of a single rescue operation	1-E = 1-14 minutes F= 2 hours, 0 = Until the battery power is depleted	2 (2min)
d	Stop rescue when power is restored	Bit0=0 Prohibition； Bit0=1 Allow	1 (Allow)
E	Set the rescue completion signal	Bit0=0 NO; Bit0=1 NC	0 (NO)
F	Set the rescue enable signal	Bit0=0 Invalid; Bit0=1 Effective	1 (Effective)

8. Parameter setting method



9. Common Product Technical Parameters

Specifications	3P075-4	3P110-4	3P150-4	3P185-4	3P220-4	3P300-4	3P370-4
Maximum inverter power	7.5 KW	11 KW	15 KW	18.5 KW	22 KW	30 KW	37 KW
Input	AC 380V ± 10%， 50 Hz / 60 Hz						
Output	Same input when the power is normal. Rescue: AC 380V ± 10%， 50 Hz （SPWM）						
Battery	12V7AH X 4	12V7AH X 5	12V7AH X 6	12V7AH X 7	12V9AH X 7	12V7AH X8	12V9AH X 8
Protect function	Output over voltage and under voltage, output over current, battery under voltage and over current.						

10. Maintenance instructions

1) For the first use or after long-term storage, the ARD must be fully charged.

2) If you find battery deformation and, do not use it, must replace it.

3) If there is no power outage for a long time, a rescue test should be conducted on the ARD 3 to 6 months. If any abnormality is found, consider replacing the battery.

4) When maintaining the elevator, be sure to first turn off the ARD to prevent accidental injuries.

11. Selection Suggestions

1) When selecting the model, in addition to referring to the power of the elevator inverter, the rated load of the elevator should also be considered.

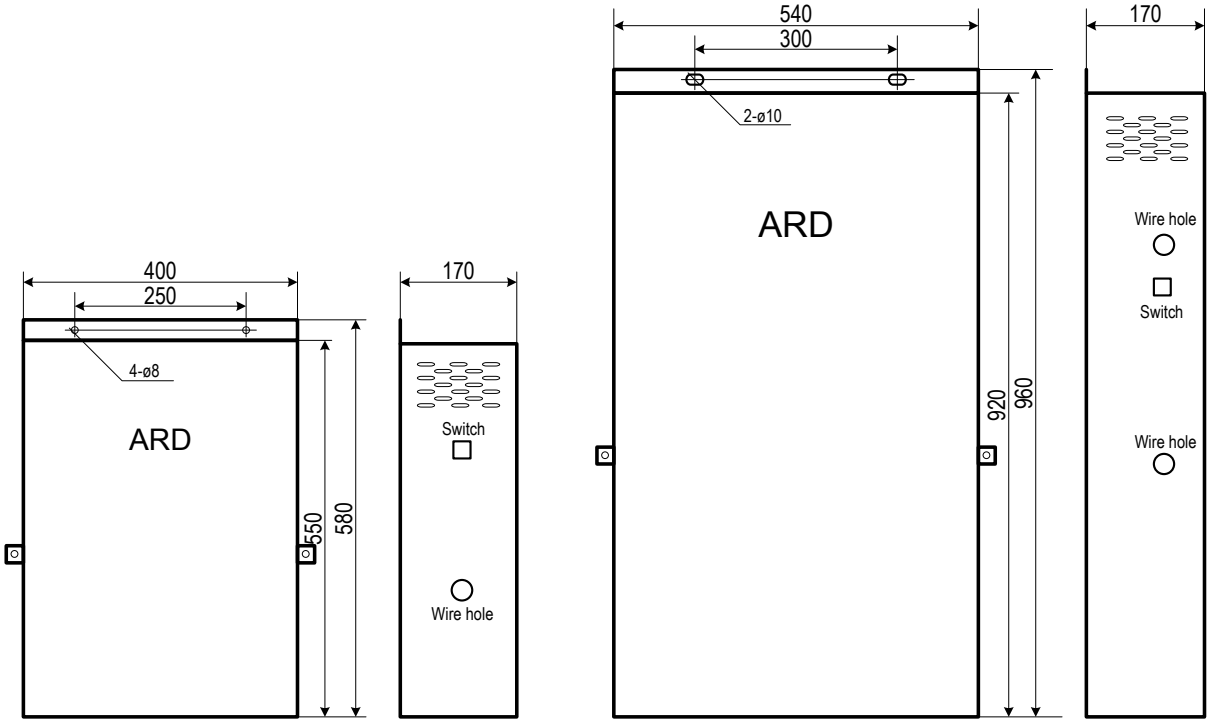
2) It should be clarified whether the elevator returns to the nearest floor or directly returns to the base station when power is restored after a sudden power outage.

3) For high-power elevators, the maximum output current during the process of returning to the nearest floor should be measured on-site.

4) Users are advised fill in the "ARD Selection Parameter Table" provided by our company, so that we can assist in the selection.

5) If this manual is updated, no notice will be given, please pay attention to the version number.

12. Installation Fixing Method



November 2, 2024